

1. (Currently Amended) A method for preparing a photocatalyst containing titanium dioxide, characterised in that from an acid solution containing titanium oxysulphate at a temperature under the boiling point of the solution is precipitated by addition of crystal nuclei a sulphurous titanium dioxide hydrate precipitate, said precipitate being separated and subsequently subjected to thermal treatment in order to obtain a crystalline product with a sulphur content of 1 to 5 w%;

and wherein the precipitation is conducted without addition of base in a temperature range from 70 to 100°C and the precipitate separated from the solution is calcinated in air in the temperature range from 100 to 500°C.

2-3. (Cancelled)

4. (Currently Amended) A method as defined in claim 3 1, characterised in that the crystal nuclei are anatase.

5. (Cancelled)

6. (Currently Amended) A method as defined in claim 1, characterised in that the solution containing titanium oxysulphate is obtained by reacting ilmenite and ~~suphurie~~ sulphuric acid, by dissolving the sulphate thus formed and by removing at least part of the iron from the solution by reduction into ferrous form and crystallisation.

7. (Original) A method as defined in claim 6, characterised in that ferric iron is left in the solution, so that the

titanium dioxide hydrate precipitate obtained contains iron.

8. (Previously Presented) A method as defined in any of the preceding claims, characterised in that a chromium(III) compound is added to the precipitate before the thermal treatment.

9. (Previously Presented) A method as defined in any of the preceding claims, characterised in that an iron compound is added to the precipitate before the thermal treatment.

10. (Currently Amended) A photocatalyst obtained by a method according to any of the preceding claims, the photocatalyst containing titanium dioxide, characterised in that the crystalline particulate product has a specific surface area in the range from 100 to 250 m<sup>2</sup>/g and that the product contains 1 to 5 w%, ~~preferably 1 to 4% of sulphur.~~

11. (Original) A photocatalyst as defined in claim 10, characterised in that the major portion of titanium dioxide is in anatase form.

12. (Currently Amended) A photocatalyst as defined in claim 1, characterised in that the product contains 0.05 to 2 w% of chromium, ~~preferably 0.1 to 1%,~~ and 0.05 to 0.3 w% of iron, ~~preferably 0.1 to 1.5%.~~

13. (Currently Amended) ~~Use of the~~ A method for photocatalysing a reaction, comprising adding a titanium dioxide prepared as in claim 1, into a reaction mixture and

directing as a photocatalyst operating at visible light wavelengths to the photocatalyst for exciting the photocatalyst.

14. (Currently Amended) Use of the A method for photocatalysing the decomposition reaction of a organic compounds and microorganisms, comprising adding titanium dioxide prepared as in claim 1, into a reaction mixture containing organic compounds or microorganisms and directing light to the as a photocatalyst in the decomposition of organic compounds or microorganisms for exciting the photocatalyst.

15. (Currently Amended) Use of the A coating composition comprising titanium dioxide photocatalyst prepared as in claim 1, as a photocatalyst in a coating composition.